

RURAL
WORLD

DEVOTED TO AGRICULTURE HORTICULTURE HORSES CATTLE SHEEP SWINE ETC.

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COLMAN'S RURAL WORLD.

HORMAN J. COLMAN,
LEVI CHURCH,
EDITORS.

Published every Wednesday, in Chemical building, corner of Eighth and Olive streets, St. Louis, Mo., at one dollar per year. Eastern office, Chamber D. Colman, 125 Temple Court, New York City. Advertisers will find the RURAL WORLD the best advertising medium of its class in the United States. Address all letters to COLMAN'S RURAL WORLD, Chemical Building, St. Louis, Mo.

Subscribers must bear in mind that the subscription price of the RURAL WORLD is one dollar a year, and that we do not receive single subscriptions for a less sum, but in our constant effort to enlarge our circulation, we do allow old subscribers to take actually NEW subscribers at the fifty-cent rate, adding a new name with their own for one dollar, and other new names at fifty cents each, but in no case do we accept two OLD subscribers for one dollar. We are willing to make a loss on a new subscriber the first year, believing he will find the RURAL WORLD indispensable ever after.

We also send the RURAL WORLD in conjunction with either the twice-a-week St. Louis "Republic" or the twice-a-week "Globe-Democrat" for one dollar and fifty cents a year, and new subscribers may be added at the fifty-cent rate. Published at this remarkably low price—less than actual cost—all subscribers must see the necessity of our dropping from our subscription list every name as soon as the year paid for expires. Thus if, on the printed slip on each paper you see John Jones, Nov. 9, it indicates that the name will drop from the list at the end of November, and if he wishes to continue to receive it, he must renew his subscription. If he would do it a week or two in advance, it would save us the trouble of taking his name off the list and again putting it in type, when he renewed, which frequently causes mistakes. This is the season to push the good work of getting new subscribers. Show your neighbors a copy of the RURAL WORLD, call their attention to the large amount of fresh, original, entertaining and instructive reading matter contained in each issue; tell them of our large number of intelligent correspondents, and how highly you appreciate its weekly visits and of the low cost at which it can be received. If our readers will spend but a portion of one or two days in enlisting in this work they can easily add more than fifty thousand new names before the first of January! Who will engage in this work? Will not each reader, male and female, young and old, go into the field at once and see how much he can do to help not only the farmer, but the cause of progressive agriculture?

We coincide with Jasper Blines of Seven Pines in his commendation of the Osage Orange for fence-post purposes. We believe it would be a better tree for the farmers of Missouri and the South to grow for the purpose than would be the locust or mulberry, of which mention was made by C. D. Lyon in our issue of Jan. 1. There are few farms on which an acre of land cannot be found which is for the most part waste land, but which would, if planted to Osage Orange trees, afford in a very few years an abundant supply of fence posts of unsurpassed quality.

One of the "Random Thoughts" of J. W. F. in his communication on this page should be a shaft of light into the minds and hearts of all who read the words: "Has what we have done helped us to do better things and in a better way?" To do better than ever before—larger yields, better quality, lessened cost by better methods—should be the watchword of every farmer, and it is only those who are actuated by this that will reach marked success.

The marts of the world are flooded with the products of the millions of toilers who make no advance from year to year, and at the same time search is being made in every corner of the earth for the best that human intelligence and skill have thus far been able to produce. Absolute perfection is a bright but distant star, but with our eyes on this star, we must be guided mainly by the light from the sun of the present-day knowledge, and the moon of past experiences.

"Rickmers" request for information regarding the growing of alfalfa in Southwest Missouri is complied with in this issue by Mr. J. H. Lay of Benton county, in a communication, which, if read and heeded by the farmers of Southwest Missouri and other sections of the state also, will be worth many, many thousands of dollars to our agricultural interests. Others may have a part in this good work and extend it by relating their experiences with alfalfa through our columns. This is one of the ways in which a farm paper can do the most good by affording its readers an opportunity to

ask for information, and others to give them their experiences.

Mr. Lay's answer to "Rickmers" query is worth far more to our readers than would have been an editorial article on the adaptability of alfalfa to Southwest Missouri. The columns of the RURAL WORLD are a means to our readers of not only getting information, but of doing good to others. Let us think of "the good we may do, as the days are going by."

THE MIDDLE SOUTH.

Our Ohio correspondent, Mr. C. D. Lyon, in this week's "Notes From an Ohio Farm," gets off of the Ohio farm down into Kentucky and Tennessee, and even across the Mississippi river into the Ozark country of the Big Red Apple. But it is to an excellent purpose, and we are glad that he let his thoughts and pencil take the excursion. We have frequently directed the attention of our readers to the Middle South as a region affording splendid opportunities for people of limited means to acquire homes, and we are glad to have Mr. Lyon's personal observations and judgment confirm our opinion.

And, by the way, what of the brother's responsibility for failing to inform home-owners of the above title. It makes us wonder. We can't escape responsibility in this world, either positive or negative. Our readers, knowing C. D. Lyon so well, would read with much interest communications from a brother of his. We would be pleased to hear from him regarding the "Middle South."

A LOOK OVER THE FLOCK.

We commend to RURAL WORLD readers, whether they are sheep raisers or not, the article on page 7 of this issue, entitled "A Look Over the Flock." It is a most successful breeder. It is a highly developed power of observation, enabling one to "see things" as they are, that results in great naturalness; and it is the same power of observation, coupled with the ability to perpetuate or eliminate by proper mating, that leads to the great breeder. It is this that ever comes to you, dear reader, how much there is in farming beyond the planting of corn of an unknown variety, cultivating it enough to prevent weeds from killing it, harvesting the crop and feeding it to some pigs that will bring so much per hundred weight? Let us take a look over the flock and see if there are not some interesting facts that have escaped our mental as well as physical vision.

OF PARAMOUNT IMPORTANCE.

"There is no reason to believe that commercial fertilizers would be necessary in 50 years on most of our Missouri farms if the proper methods of farming are followed. It seems to me that the boy who is born this year or 50 years from now has as good a right to the present generation as I have. The man who dies and leaves his farm worn out from continual grain raising, has been doing his children a great wrong. The soil is one of the provisions of nature necessary for the support of mankind. It is the present occupant of it any more right to ruin it than it is to pollute the water or contaminate the air somebody else has to use."

The foregoing are the closing words of Professor Eckles' article on "Dairying as a means of keeping up the fertility of the farm," which appears on page 2 of this issue. They are wise words and should have the profound consideration, not only of farmers, but of statesmen, students of political economy and all who are interested in the development of our commonwealth and progress of our people.

From our earliest study of questions bearing on the development of agriculture, we became thoroughly convinced that no line of farming offered more of practical benefit, not only to those engaging in it, but to the whole community than did dairying where the conditions were at all favorable for this work. No other line of farming so stimulates industry and thrift, favors increase of population in the country districts and, so, adding to the school population, develops a demand for better schools; encourages road improvement; stimulates trade in the neighboring towns; justifies better farm buildings and other improvements; so improves the earning capacity of the soil, and last, but not least, of all, so develops the mentality. Hence we have persistently urged that because of this wide reach of good coming from dairying, our state legislatures and fed-

eral congress should not only guard but foster the dairy industry; and that no more important line of work can be undertaken by our agricultural colleges and experiment stations than dairy instruction and investigation. We were therefore highly gratified when the Missouri legislature at the last session, at the request of the State Dairymen's Association, made provision for the establishment of a chair of Dairy Husbandry in the Missouri Agricultural College; and we are glad to know that the chair is occupied by a man who has a high appreciation of the wide importance of the dairy industry. Professor Eckles has before him an opportunity of great good in convincing Missouri farmers that it will be to their interest to make dairying a part of their business, and the RURAL WORLD will be glad to aid him in the work.

AGRICULTURE

At the St. Louis World's Fair of 1902.

When the officials of the Louisiana Purchase Exposition were confronted with the question of what arrangements should be made for housing the exhibits of Agriculture, and as to whether a separate building should be supplied for each division or department, or one enormous structure provided, they found it rather a complex question. The way in which the question presented itself to them may perhaps be best understood should reference be made to the way in which the agricultural exhibits have been made heretofore.

At Chicago a splendid agricultural building was provided, and a fairly roomy one for the Division of Horticulture. All those who had fruit on exhibit at that exposition, however, are aware that the rooms provided for their exhibits were about as badly adapted to their intended use as could possibly be. The laying out of the grounds and the building were based on the necessity for a large central dome—in balancing up the space surrounding this single room could be found large enough to contain the entire fruit exhibit. Thus it seemed necessary to have two entirely separate rooms. This made it impossible to get from any one point, a view of the fruit exhibits. This separation seemed to dwarf the exhibits and was very unsatisfactory. Further than this, the rooms in which the fruit shows were made were much lower than the machinery buildings of Agriculture, Machinery, etc. Consequently the temperature during the heat-est portion of the season was almost insufferable.

At Chicago it was originally intended that the agricultural implements should be housed in the Machinery Building, as the pressure for space showed very clearly that a sufficient amount had been provided, an annex was built into which all the agricultural implements were put. This arrangement was naturally very unsatisfactory to the exhibitors as well as to the visitors.

Another phase of the question which came up at this time was well represented by the conditions at the Omaha Exposition. There the dairymen and beekeepers each insisted upon a separate building, in order that they might bring their products to the attention of the visitors, with nothing else near to distract their attention. The result was that the average attendance in these separate buildings was not more than ten per cent as great as it was in the main buildings of the Exposition. At that position the Department of Horticulture was given a separate building, fairly well adapted to its intended use, but so situated upon the grounds that it was not visited by nearly all those who attended the Exposition.

The agricultural implements at Omaha were housed with the transportation exhibits in a building erected for the latter department, but it was somewhat to one side and the arrangement of the building, which was very cheap in construction, was not at all satisfactory to exhibitors.

Guided by a desire on the part of the Louisiana Purchase Exposition Co. to avoid these mistakes of the past, it was suggested that one enormous building having an area as finally worked out of nearly 22 acres should be erected, so that under one roof might be shown all the divisions of agriculture, including horticulture, dairy, agricultural implements and, perhaps, forestry. After a careful canvass of the situation it was unanimously agreed that the plan of showing under one roof all these separate divisions should be adopted. Each division will be assigned its separate and distinct space of ample proportions, which will be in charge of a superintendent, who will be chosen with reference to his broad knowledge of the particular subject of which he will have charge.

In this way practically every visitor to the Exposition will enter the building in which will be displayed all of these different divisions. Had it been decided that there should be five buildings, instead of one, each with a sufficient area for the division it was to house, and the united area to be the same as the large building mentioned, it is certain that no one of the buildings would receive as many visitors as will the one large one, while it is equally certain that some of the smaller divisions would not have received a quarter the number of visitors who will pass through a single enormous building.

Any one who has had experience as an Exposition official or as a visitor at any of the recent Expositions, will, we are sure, appreciate the great advantage of having housed under one roof, on distinct

and separate spaces, all of these enormous interests which go to make up the agricultural resources of the world. To find first-class locations for a half dozen buildings of this sort would be utterly impossible, while with these divisions all in one building the area is so great that it becomes the largest and most important building in the whole Exposition, thus demanding and securing first choice of locations.

NOTES FROM AN OHIO FARM.

Editor RURAL WORLD: Business called me to Cincinnati Dec. 12, and while that far on my way I concluded to visit my brother who lives 150 miles south on the Queen & Crescent railroad. He moved there 14 years ago, attracted by the cheapness of the land and the advantages in the way of good water and fine timber.

A 100-acre farm was bought at \$2 per acre, and he set in to farm it as we did back in Ohio, paying no attention to those who said, "Clover won't grow here," or "fertilizers ruin the soil." The other day I saw on that farm 14 head of fine hogs, 11 head of cattle and a good team. What is more, I saw plenty of clover hay, corn and corn fodder, and 10 bushels of clover seed the work shop. My brother said that he had 40 bushels of wheat in the mill and 35 more in the bin. He was selling dressed hogs at \$7.50 per cwt. and flour at \$2.25 per cwt. to men who own more acres of better land than he has. The day I got there he had been to the town with eight pounds of butter that brought 30 cents per pound; and the day I came home he carried over seven dozen eggs at 24 cents per dozen.

WHAT DID IT?—I saw clover and fertilizers did it, or rather the fertilizers came before clover, and helped him to grow clover. Another thing he did was to never cut or haul a saw log, stave bolt or railroad tie excepting when he got out lumber for his home. "Fishes" who grew up in that country cut and hauled logs, ties, etc., in the spring until it was almost too late to plant corn. Then they planted a few acres, and went back to the timber again, letting the crop take care of itself. In the fall he had corn to sell to those who could have grown it as well as he. He plus his faith to clover as he can grow it every year, but says cowpeas are his second choice as a soil renovating crop.

Fertilizers were used at the rate of 200 to 300 pounds per acre on corn in the spring and on wheat in the fall; and he put plowing when he felt that he had the land broken that he could afford to fertilize and cultivate properly. Another thing he refused to do, and that was to accept the agency for the farms for sale about him; arguing thus: "If I induce a man to come here and settle and he becomes dissatisfied I bear the blame of having brought him here."

CHEAP LANDS SOUTH.—The writer of this has seen a great part of the country West and South, and is strongly in favor of the Middle South for homes for people of moderate means. There are thousands of acres in Missouri, Kentucky, Arkansas and Tennessee that can be bought for from \$2 to \$20 per acre, and while the land is not as rich as are the prairies of the West, it will produce fair crops.

This fall I saw a deal of land in the Ozarks that could be bought at the prices indicated, and it would make 30 to 40 bushels of corn and 10 to 20 bushels of wheat per acre, and the same is true of the Kentucky and Tennessee land where my brother lives. Indeed he has the best corn I have seen grown this year.

MOUNTAIN LAND.—It seems strange to me that those who have such land for sale do not try to get a proper knowledge of it before the people. Those who have never seen mountain land have a sort of idea that it is a series of peaks and cliffs, one above the other, when it is in reality more level than lots of land in the eastern states, where land sells for \$20 to \$25 per acre.

"Plaster part, capable of being cultivated with any kind of improved machinery. Somehow my mind goes back to some of the lands I saw about Flemington, Oceola, Nichols, Marshfield and other Missouri towns, where I spoke at institutes, and at Embank, Pulaski, Somerset and other towns I know in the Cumberland mountains, and when I remember the crops I saw there this season of almost universal drouth, I am sure that they do not suffer by comparison with lands in other so-called favored localities.

Again, let us look at the advantages of wood, pure air and better prices of wheat, \$1.00 will buy a farm that will support the largest family, while in most other places it will take from \$2,000 to \$3,000 to buy a farm. The Ozark region is par excellence the fruit region of the world, but I think the Cumberland land region mentioned before is better adapted as farming and grazing land. No doubt there are other places as good as those mentioned, but I write only of those I am familiar with.

SECRETARY ELLIS.—Mr. Editor, I am glad to note that Mr. Ellis has been re-elected to the secretaryship of your state board. I was under his direction nearly two months the past fall, and endorse every word you say about him in the RURAL WORLD of Dec. 25. He is exact, painstaking and obliging; in short, the "right man in the right place." Southern Ohio. C. D. LYON.

WINTER DAYS AT SEVEN PINES.
Mr. Blines Advocates Forest Tree Culture, and Commends the Osage Orange.

Editor RURAL WORLD: Your remarks on "Treeless Farms" compose a message of warning to the entire United States. As our country advances, new branches of governmental departments must be added to supervise important developments, political, commercial or for other subjects. And in agriculture light breaks in upon some features of our calling, and gives prominence to them. Examples along this line appear in the protection of the land against erosion, protection to our native birds, and education of the public to the importance of forestry preservation. The recent summer, with its blighting influence upon vegetation, is a very striking lesson in how the destructive hot winds may be dealt with and their effect modified. Groves and timber belts upon the farm are strongly urged and advocated by our leading writers as a means of lessening the rapid evaporation and the desiccation of plant life. J. R. Sage, in the November Weather Bureau Review, says that "in a single field of 40 acres, one portion of which was partially sheltered by a ridge and grove from the southwest wind, and another exposed to the full force of the hot blast, there was noted a difference of 25 bushels per acre in favor of the protected portion."

Action of the air adds to the destructive influence of high temperature or to low temperature. Groves, timber belts and hedges around fields will in degree prevent much loss of crops from the hot winds of 100 degrees or higher. Another loss to corn, oats, wheat and other products because of high winds is due to the change of temperature when a high barometer comes sweeping in from the northwest and forces a retreat to a low pressure, moisture laden atmosphere. We witnessed an example of this change here on June 22, when quite a loss occurred to the growing corn, oats and wheat, because of high winds.

An interested observer notices so much waste land which could be well utilized for cedars, pines, Russian mulberries, catalpas and Osage Orange trees, and many other classes of beautiful and useful trees. In commendation of the Osage Orange, I wish to quote here a sentence from Philbert Roth, in the United States Department of Agriculture Bulletin No. 10. Mr. Roth says in his definition of Osage Orange: "Seems to be too little appreciated." This is true. The Osage Orange is not valued as it should be. In durability this is classed as pre-eminent, and there should be upon every farm a grove or belt of the Osage Orange sufficient to furnish all posts required upon the place. The Osage Orange is so valuable that its interests should be promoted.

JASPER BLINES.
Clark Co., Mo.

ALFALFA IN SOUTHWEST MISSOURI.

Editor RURAL WORLD: In your issue of Dec. 26 you ask for information for your correspondent, "Rickmers," from those having experience with alfalfa in Southwest Missouri. In the report of the Missouri State Board of Agriculture for 1901 he will find an account of most gratifying success with alfalfa at Humansville, Polk County, Mo., by Mr. George W. Williams. A good many farmers in this (Benton) county have been experimenting in a small way with alfalfa for several years, and are very much pleased with it. Some patches have stood the winters and summers for five or six years without any injury. It remained green on our stony, clay soils, all through the late drouth, and was cut as many as three times. Clover and timothy died under similar circumstances. We have no alfalfa seed, but very great value here, as we find it will grow on stony land that cannot be cultivated successfully, and on which ordinary crops are destroyed almost every summer by drouths.

The only difficulty here, as elsewhere, is to get it started, it being a feeble grower when first sown and easily choked out by weeds or grass. My studies and experiments lead me to think that the surest way to get it started without delay is to sow it in the fall, early in September, on land that has been fallowed in the summer several summers for wheat, and thus cloaked with weeds and grass seed. By breaking such wheat stubble as early as the wheat can be got off and working the ground thoroughly during the remainder of the summer, as it should be for wheat, and sowing early, I have had excellent success with two foot patches, sown in the fall of 1898. One patch was on very thin, sandy prairie soil in Hickory County, and one here on new, rich, loamy soil. In each case I sowed at the same time a small patch with wheat along side. On the poor land where the wheat was not rank it caught pretty well, but on the rich land where the wheat was thick and rank I got no stand at all.

I also sowed some patches on corn ground in the spring of 1900, in one instance merely harrowing the ground well and harrowing in the seed. By clipping weeds and grass I got a good stand. On another very stony piece of corn ground too rough to cultivate with any satisfaction, I scratched the ground over with a cultivator, harrowed seed in and got a good stand, but, owing to stones and stumps and neglect, did not get it mowed at all during the season of 1900, and it

rank crop of weeds and grass grew with it and smothered it out in places. I burnt it off on a hot, windy day last spring without the least injury to the alfalfa, which continued growing all through the drouth. All mine here formed seed abundantly this year; but I am informed that a piece I have on sandy prairie at Harwood, in Vernon County, did not form seed.

Mr. Boyd, one mile north of here, about six years ago at the close of winter, sowed a few acres of newly cleared, stony hill land without plowing the land, and I believe without harrowing, keeping the grass and weeds down the first year. He has been selling more hay from that field per acre than our best bottom lands in clover and timothy have made. In short, many of us here are fully convinced that in alfalfa we have at last found a plant with which we can get very valuable crops off our stony, clay lands, heretofore considered worthless for cultivation. The main difficulty is in getting it started, and of course it will suffer from unfavorable management, the same as other crops. Aside from standing drouths, it has the great advantage of living for many years and is not a biennial, like clover.

Benton Co., Mo. J. H. LAY.

AN INDIANA LETTER.

Editor RURAL WORLD: The season just passed has been a splendid one in which to observe the effect of the different methods of cultivation. Drouth has prevailed almost universally, and where improper methods were adopted almost total failure was the result. The corn crop was most affected, but in some instances "defeat was turned to success" by the intelligent application of the latest and most approved ideas.

Of course it is well understood that soils differ in properties and are differently affected by drouth. It is also true that "there are no twin half-acre" fields lying side by side that would probably under like conditions, be like affected. I have seen some fields so situated, differently cultivated and with obviously different results.

Some seven or eight miles from Evansville, Ind., where the soil is as good as the crop ever flew over and where small yields are the exception, were two fields of corn lying side by side and of approximately the same size. One field had probably been plowed three or four times, but by the old method—in fact the oldest method—by riding the ground around the stalk. The field was clean, lying side by side that would probably under like conditions, be like affected. I have seen some fields so situated, differently cultivated and with obviously different results.

The other field had been given the very lightest surface cultivation and the soil was in fine enough tith for an onion bed, and would satisfy the most fastidious as to cleanliness. No pains had been spared, and the cultivation had evidently extended to the time the corn had tasseled, for the ground looked as if it had been recently worked. When I passed these fields I determined to watch the ear development. Passing there again in October, I made note of the absence of ears in the first field, and that in the number two there was a fairly good yield. I observed the same effect everywhere following the different methods of cultivation, although this was the only opportunity I had of observing the different methods in such close proximity.

Yet there is no room for doubt as to the comparative value of the old versus the new. Methods may need to be varied according to the season. Yet I am sure that the level method is always good and the "high" method only sometimes.

Moreover the seasons do not seem to have as even a rainfall as formerly, and while in the early part of the season there may be plenty of moisture, the latter part may be very dry, just when the ear needs the moisture most, and so early, level surface cultivation is just as necessary in order to retain as much moisture in the soil as possible. In other words, store it by not allowing it to escape by capillary attraction.

It may be many years before we have another such dry season, but it may come soon again. No matter as to that. I trust that there may have been some good derived from the one of this year, a closer study of crop cultivations, planting and tending, of providing plenty of water for the use of stock and the necessary precaution taken before it is absolutely needed.

Let us have deeper wells to supply water for horses, use, or if cisterns are used, let them be large enough and the water properly filtered. Artesian wells are cheaper than doctor bills or the inconvenience of having no water at all. One artesian well would supply the needs, for all uses, of a very large farm. Go deep enough and it will flow out at the top, of its own pressure.

A merry Christmas and a prosperous New Year to COLMAN'S RURAL WORLD and all its readers.

Marion Co., Ind. R. W. STANTON.

Mr. Stanton's letter is another suggestive one and one that should be thoughtfully read.—Editor.

HENRY CO., WEST CENTRAL MO.

The cold weather that we have been having with snow on the ground has not injured the wheat. Since the snow is off, it looks fine, and some are pasturing the rank growth of wheat. Water is scarce yet, as most of the farmers have been entirely out of water for some time. Dec. 26. J. M. FRESHNER.

RANDOM THOUGHTS.

Editor RURAL WORLD: Now is the time when we must decide what papers we will take the coming year, and there are so many, and they are so good and so cheap that it is hard to know what to choose. Of course, we must have our home paper. Then every family ought to take some religious journal, and the whole family want some literary magazine, and the women want the fashions, and if father has a specialty he wants something along that line, and the agricultural paper in some measure covers the whole ground.

One little item in the RURAL WORLD last fall saved four young apple trees for me. Another gave me a recipe for the best bacon we ever had, and so on through the whole list, but we poor people must be content with what our meager purses can furnish.

I was in our county seat a few hours the day before Christmas, and was surprised and delighted to see so many people buying Christmas goods. Times are as hard as I ever saw them—crops a failure, business almost at a stand still, not much work to do, feed and provision scarce and high and still every one remembered it was the blessed Christmas time, and seemed to want to bring cheer and gladness to all around them. It is the influence of the Christ life.

And there are so many home gatherings. The girls are home from college and the boys leave their business positions and gather round the home fires, and all are happy and care is forgotten. Home is the anchor that holds fast the heart, and "all distances are measured from home."

Soon we will turn our faces into a new year. What will we do? What do we want to do? Has what we have done helped us to do better things, and in a better way? May we not have to do all we will ever do before another New Year? Garfield once said: "I must do this my very best, for I shall not pass this way again." J. W. F.

LA Monte, Mo., Dec. 28, 1901.

FARMERS KEEP POSTED.

Editor RURAL WORLD: A great many farmers let the other fellow do the thinking for them. They don't make any effort in that direction themselves. Now a farmer, to make a success of his business, must keep posted. He should keep track of the market and also of the supply and demand of products. Then he would know when to hold and when to sell. A farmer may be ever so successful in raising his crops, but his work is only half done when he has his grain in the crib. He may lose more by selling at the wrong time than his profit would amount to over and above the cost price. A farmer's crops cost just about so much for seed and labor.

A case of this kind happened right here lately. One of my neighbors had some corn to sell. He asked my advice about it. I told him if I were the owner of the corn I would hold it awhile longer. He went home, and in a few days he sold it for 45 cents per bushel, and now, in less than 30 days, he could get 65 cents for it, and the chances are that it will still be higher. Now here was a loss of \$20 per hundred bushels, which was lost by not keeping posted. The loss on 100 bushels would have paid for a good reliable paper for 5 years. But he seems to think that he is not able to take a paper. I think a farmer cannot afford to do without a good paper, especially if he is a poor man.

Again, some farmers will work along, year after year, and they never know whether they are making any money or not. It is much. A farmer should imitate the merchant. He should invoice his property, and now will soon be a good time.

In January, 1902, let every farmer sit down and take pen and ink and jot down his horses, cows, hogs, sheep, money, notes, hay and grain. In fact, list everything that has a cash value. Be honest with yourself. Appraise everything at its actual cash value. Do the same next year and you can compare the two and you will be in a position to know how much you have made in the year. I promise you if you do this you will always know just how you stand, and you will also soon find out the value of your property, and you will know what brings in the most money. Keep these lists and it will give you an insight into your business which you could not get in any other way.

It is also good business policy to look over the seed catalogues and keep posted on the new and improved varieties of the different kinds of grain. Quit planting the little yellow corn your granddaddy brought from old Kentucky, but try something new. Every farmer should have a small experimental plot of good, strong land where he could try some of the new sorts of grain. I think he would find that it would pay.

Scotland Co., Mo. F. M. RIEBEL.
Mr. Riebel has made a number of most excellent suggestions, which we trust will have the consideration they deserve from our readers.—Editor.

OLEOMARGARINE LAW UPHOLD.

The United States Supreme Court has confirmed the judgment of the Ohio Supreme Court in the case of the Capital City Dairy Company vs. the State of Ohio, involving the validity of the Ohio statute regulating the manufacture and sale of oleomargarine. The case was decided in favor of the state, on the ground that the oleomargarine statute is a police regulation. The opinion was rendered by Justice White.

JAN 11 1902
SWITHSONIAN PRESS

The Dairy

DAIRY CONVENTION DATES.

Oregon Dairymen's Association at Salem, Jan. 7, 8 and 9, 1902.
 Illinois State Dairy meeting at Freeport, Jan. 7, 8 and 9.
 Vermont Dairy meeting, Montpelier, Jan. 7, 8 and 9, 1902.
 Wisconsin Cheesemakers' meeting, Milwaukee, Jan. 8, 9 and 10, 1902.
 Wisconsin Buttermakers' Association at Madison, Jan. 14, 15 and 16, 1902.
 Nebraska Dairy Association, Lincoln, Jan. 22-24, 1902.
 Michigan Dairymen's Association, Lansing, Feb. 4-6, 1902.
 Ohio Dairy Association, Columbus, Feb. 6-7, 1902.
 Wisconsin Dairymen's Association, Menomonie, Feb. 12-14, 1902. G. W. Burdard, Secretary, Fort Atkinson, Wis.
 Kansas State Dairy Association, at Manhattan, Kan., March 4, 5, 6, 7, 1902. T. A. Boreman, Secretary, 566 Polk street, Topeka, Kan.

THE MARION COUNTY (MO.) DAIRY ASSOCIATION.

Editor RURAL WORLD: The Marion County Dairy Association was organized Saturday, Dec. 21, 1901. Fifteen of the dairymen and farmers of the county met in the farmer's room of the new court house at Palmyra and effected the organization by electing H. T. Winn president; Jas. C. Curd, vice-president; Mr. Buckwald, secretary, and G. S. Keller, treasurer. The object of the association is the financial, intellectual and moral benefit of the members and the development of the dairy industry in Marion County.

At the next regular meeting, on Saturday, Dec. 28, after some discussion of the prices and composition of different kinds of feed, it was decided to order a carload of Atlas Gluten meal, it being thought cheaper than brewers' grains. Whether or not it was a wise selection, time will tell.

Some of those present thought it would be all right for dairymen who sold milk in town to feed brewers' grains, as some people might buy the milk thinking it would be flavored with beer, while others would not. But that as it may, it is a debatable question if a man who has pledged himself to do all he can to prohibit the manufacture and sale of liquor ought to encourage the brewers so much as to buy their by-products. One thing is sure, however, the man that buys much beer will soon have no money with which to buy the dairymen's products.

Our creamery is still doing a good business in spite of the fact that a good many cows have to look to the straw pile and fodder shock for all they get to eat, and not always a very plentiful supply of that, and without any seasoning whatever. Of course we think people are standing in their own light to let a good cow go dry just for the want of a little grain feed. What few cows we are feeding are doing well, but the grain with the butter fat, besides, who would value skim milk now at less than 50 cents per 100 pounds, to say nothing of the increased value of the manure? Of course we do not expect this sort of high prices to last always, and so our aim is to get our cows through the winter in good shape and have them ready for business in the spring.

WM. GLENDINNING.
 Marion Co., Mo.

CEDAR HILL JERSEY FARM NOTES.

Editor RURAL WORLD: On Jan. 7 the dairymen of Illinois will meet at Freeport in convention. The program is a promise of many good things. Especial attention has been given to the butter and cheese exhibit. Cash premiums aggregating \$2500 have been provided. The dairy chinery exhibit will be quite complete also.

Prof. Farrington of the Wisconsin Agricultural College will present the subject of the Patron's cow. Prof. Ert of the Illinois State University will talk about different methods of cream separation. Prof. G. L. McKay of the Iowa Agricultural College will present subject of Staters in Butter-Making. Our mutual friend, E. M. Wentworth of Marshalltown, Iowa, will tell us about the Decline in Dairying. These are a few of the men and papers that will be presented. I hope to see a good dairyman from Missouri in attendance.

A WARM BARN.—My boys have kept a record of temperature in our cow barn during the recent weather, and find that there was an average of 53 degrees in the barn during the week that it was from 5 to 20 degrees below zero outside. It is not necessary to add that our cows, with enilage three times per day, plenty of warm water and sunshine, have given a good account of themselves.

OUR SWINE HERD manager is arranging to overstock the spring market with winter farrowed pigs. He has two young sows with families of six pigs each, and I cannot see but they are doing as well as pigs that are farrowed in the warm months. We have some 3200 hogs built of shiplap and lined with tarred paper. These houses make ideal places for a sow and her family. On one side a lantern is hung in the houses, which keeps out frost well. Our swine department is one of the best paying ones on the farm. We keep only enough hogs to receive the benefit of the skim milk, and are very particular with our breeding animals, only using the best from year to year. We have sold over 1400 worth of hogs this past fall, and these hogs did not consume more than 35 worth of corn.

JERSEY BEEF.—Last week we dressed an 8-month-old Jersey steer that was

reared on skim milk and enilage, together with a small grain feed. He dressed 280 pounds, and we find the meat very nice. A well-handled Jersey steer is a fine family meat.

COWS COMING FRESH.—Our breeding report shows we will have 12 fresh cows during next six weeks. One freshened yesterday morning and bids fair to make us a nice profit above feed during the next few months of high price dairy products. We will have 25 2-year-old heifers freshen between this time and grass and hope to develop some good ones from them. I often see statements from dairymen regarding time of year they want their cows to freshen. With us, with warm barns and full silos, we would like to have a fresh cow every day in the year; one time is as good as another, just so the times are often enough to keep our daily milk record well up in pounds of milk.

THE ICE HARVEST.—The boys have the ice tools out of rock and will begin filling the houses to-morrow. We have two ponds less than 20 rods from the creamery, so the hauling is an easy task. We use our ice plover, cutting cakes 20 inches square. I do the packing in the houses, setting cakes on edge, reversing each layer so that each one acts as a binder for the preceding one. For leveling the layers I find a six-toothed ice chisel the best tool that can be used—much better than the ads. The ice on our spring pond is now ten inches thick and on the pond formed by tile drains eleven inches. We are using hardwood sawdust for packing. It costs us 50 cents per ton. Monmouth, Ill. BUFF JERSEY.

Rheumatism

No disease makes a person feel older. It stiffens the joints, produces lameness, and makes every motion painful. It is sometimes so bad as wholly to disable, and it should never be neglected.

Elise B. Kirk, Box 247, Montezuma, Iowa, had it in her hips and limbs so that she could not sleep. Mrs. Hattie Turner, Bolivar, Mo., had it so severely she could not lift anything and could scarcely get up or down stairs; W. H. Shepard, Sandy Hook, Conn., was laid up with it, was cold even in July, and could not dress himself.

According to testimonials voluntarily given, these sufferers were permanently relieved, as thousands have been, by Hood's Sarsaparilla which corrects the acidity of the blood on which rheumatism depends and builds up the whole system.

HOOD'S PILLS cure constipation. Price 25 cents.

ONE DOLLAR \$

The Jersey Bulletin

The only strictly Jersey cattle and purely dairy publication.

Reduced to One Dollar a Year.

Sample free. Address: JERSEY BULLETIN, Indianapolis, Ind.

While it takes from the farm only 50¢ worth of plant food. A ton of cheese, worth about \$300, from this farm would cost \$15 worth of fertility. If the average farmer of Missouri kept from ten to twenty cows for milking purposes, they would not raise less crops, but more; their farms would gain in richness instead of losing.

There is no reason to believe that commercial fertilizers would be necessary in 50 years on most of our Missouri farms if the proper methods of farming are followed. It seems to me that the boy who is born this year or 50 years from now has as good a right to a chance to earn a good living as has the present generation. I believe the man who dies and leaves his farm worn out from continual grain raising has been doing his children a great wrong. The soil is one of the provisions of nature necessary for the support of mankind. Has the present occupant of it any more right to ruin it than he has to pollute the water or contaminate the air somebody else has to use? C. H. ECKLES, Professor Dairy Husbandry Missouri Agricultural College, Columbia, Mo.

THE TAINING OF MILK.

The most unpleasant taste of tainted milk which appears in a good deal and is shipped to market in the fall and early winter is due to a large extent to the condition of the pasture lands and the carelessness of the milkers. Nothing probably prejudices city people more against drinking milk than to taste this disagreeable flavor. Dairymen who are careless in their methods do a great deal to condemn milk as a daily diet. More and more people are coming to the conclusion that milk forms the best diet provided by nature, but people will not drink it so long as they have their sense of cleanliness and healthfulness offended by this disagreeable odor which comes from careless milking and feeding. If the trouble could not be remedied there would be some excuse for its existence, writes C. S. Walther in the "Massachusetts Ploughman."

Most of the odor and tainted flavor comes from weeds allowed to grow up in the pasture fields. These weeds are ignored by the cows when the pasture is little else to eat in the fields, they eat weeds. Now these weeds absolutely produce no milk, and get in the way of nourishing the cows nor make milk. They simply taint the milk, cream and butter, and spoil its chances of sale. Therefore, the dairymen who permits the weeds to grow in the pasture fields in the autumn is practically injuring his own interests at both ends. The weeds which are systematically rooted out in the down every summer and fall cannot long persist in growing, and the combat will become easier and easier every year. But one season's crop that is allowed to produce seeds will counteract the good work of several years on the part of the dairymen.

The matter of cleanliness in milking is one that should not need emphasizing, and yet the dirty, filthy methods followed on so many farms is sufficient evidence that careless methods are still followed. The milk that has a cowy flavor is tainted by the dirt and filth that drops in the milk pail. Careless milkers are responsible for it, and they should receive their lesson in cleanliness by those who handle the milk. If we would but remember that all such tainted milk hurts the whole business, and in most cases ruins the dairymen who practices the methods, there might be less poor milk shipped to market, and less poor butter made on the farm or creamery.

GUERNSEY CATTLE FOR THE ORDINARY DAIRYMAN.

The Guernsey is a representative of the intermediate or middle size dairy breed. The natural temper of this breed is particularly docile. The bulls are mild tempered and are rarely known to hurt any one or break out of the pasture.

This quality of good temper, along with the most excellent milking qualities of the cows, makes the Guernsey bull a favorite for placing at the head of herds of native cows, especially when butter is to be made. Guernsey milk is very rich and creamy, and is well adapted for city dairymen who sell milk directly to the consumer should use Guernsey bulls for the reason that it is becoming quite the practice in all large towns and cities to use the Babcock or other milk test to prove the richness of the milk. Even a touch of Guernsey blood in the herd helps the quality of the milk wonderfully.

The bottle has almost entirely revolutionized milk delivery in cities. The result is that every housewife holds the bottle up to the light and judges the quality of the milk by the color and volume of the cream on top of it. Now Guernsey milk is the desired color milk of all the breeds, being remarkably yellow, and even if the volume is not great the color is there and often carries the day in the close struggle for customers. Not only the cream but the milk itself looks yellow and rich and the eye always helps the taste. In these days of close competition there is no factor of the dairy of more value, if you want to win than the Guernsey bull. If he is got from a deep heavy milking dam, his calves will help to swell the yield of the herd.

Market value as follows:
 1 bushel of wheat 35
 1 bushel of corn 12
 1 bushel of oats 16
 1 ton timothy hay 8.50
 1 ton clover hay 9.00
 1 ton alfalfa hay 8.00
 1 ton straw 2.00
 1 ton wheat straw 2.40
 1 ton bran 12.50
 1 ton cottonseed meal 24.90

A glance at the above figures is sufficient to show the drain on the farm from selling these products.

While there are several ways to restore the worn out lands, everybody knows the first principle: the feeding on the farm of the feed stuffs raised.

Livestock of all kinds are well adapted for this purpose, but the dairy cow especially so.

When all grains are all fed on the farm, in the first place these elements of value as plant food are kept there. As a rule more or less feed will be brought onto a dairy farm, although it is not necessary in Missouri most years. A ton of cottonseed meal, for instance, which is one of the cheapest dairy feeds this winter, brings onto the dairy farm as much value in the way of a fertilizer as it costs. When fed to cows, a feed of this kind serves its purpose as a feed, and 75 to 90 per cent of its value as a fertilizer can be secured. Bran enriches the soil as much as would nearly \$15 worth of the fertilizers bought in the market. Another reason why the production of dairy products does not injure the farm is that the product sold takes almost nothing of value as plant food from the farm. A ton of butter, for example, will bring, at 50¢ per pound, \$400.

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THE OLEOMARGARINE FIGHT

While the National Live Stock Association was meeting in Chicago and denouncing any legislation that should look toward controlling the sale of oleomargarine and pledging itself to spare neither money nor effort to defeat any bill that purposed to regulate the sale of fraud butter, the fight for pure butter was begun in congress. The Grout bill was beaten last winter only by the sharp practice of the legal advisers of the oleomargarine interests and this session the same crowd is lined up on each side to fight out again the old battle. Mr. Grout being out of congress, Representative Tawney of Minnesota has introduced a bill which in our opinion, is still better, in that it proposes to abolish altogether any tax on oleomargarine which is sold uncolored and so marked that its true character should be known to the buyer. When colored Tawney bill provides a tax of 10 cents a pound.

It seems to us that this cuts the ground entirely from under the feet of the oleomargarine makers and their followers, the members of the National Live Stock Association. The Tawney bill should be sold without restrictions of any kind, when offered in its natural, uncolored condition. If it is such a blessing to the breeder of beef cattle and the "poor man" these parties together with the philanthropic makers of fraud butter who are so much interested in getting the highest price for bullocks for the beef breeder, and the lowest price for bull butter for the "poor man" should rise as one man and petition congress to make Mr. Tawney's bill a law at once. It gives them more than they have asked for in the way of freedom from burdensome taxation and their way is now clear to sell oleomargarine at the lowest possible price. Now, however, they will be compelled to unmask and show themselves in their true light. They must cease to fight or show that they are not worried about the best breeder's prosperity nor the poor man's comfort. They must either give up the battle or show in the most conclusive manner that they desire to defraud the public by making oleomargarine in imitation of butter and selling it as butter, thus committing a crime against good morals, public health and common decency.

Dairymen should not cease to make every effort to secure the passage of an oleomargarine bill this season. We recommend the Tawney bill as being exactly what we need—Dairy and Creamery.

SELECTING COWS FOR STATE DAIRY ASSOCIATIONS.

We have a scheme for the next meeting of the Kansas State Dairy Association, says D. H. Otis in the "Dairy Age." The plan is to select 10 good men in Kansas who have made good records with their cows, and to have them select the best cow, outside of their own herd, that he can lay down in Manhattan for \$50. The reason for not allowing a selection from their own herd is to prevent any possible objection that might be raised to a man selecting his own cow. The cows which are systematically rooted out in the down every summer and fall cannot long persist in growing, and the combat will become easier and easier every year. But one season's crop that is allowed to produce seeds will counteract the good work of several years on the part of the dairymen.

The matter of cleanliness in milking is one that should not need emphasizing, and yet the dirty, filthy methods followed on so many farms is sufficient evidence that careless methods are still followed. The milk that has a cowy flavor is tainted by the dirt and filth that drops in the milk pail. Careless milkers are responsible for it, and they should receive their lesson in cleanliness by those who handle the milk. If we would but remember that all such tainted milk hurts the whole business, and in most cases ruins the dairymen who practices the methods, there might be less poor milk shipped to market, and less poor butter made on the farm or creamery.

Most of the odor and tainted flavor comes from weeds allowed to grow up in the pasture fields. These weeds are ignored by the cows when the pasture is little else to eat in the fields, they eat weeds. Now these weeds absolutely produce no milk, and get in the way of nourishing the cows nor make milk. They simply taint the milk, cream and butter, and spoil its chances of sale. Therefore, the dairymen who permits the weeds to grow in the pasture fields in the autumn is practically injuring his own interests at both ends. The weeds which are systematically rooted out in the down every summer and fall cannot long persist in growing, and the combat will become easier and easier every year. But one season's crop that is allowed to produce seeds will counteract the good work of several years on the part of the dairymen.

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because they cannot digest and absorb enough nourishment, and hence are always more or less hungry. I have seen some delicate invalids consume enough nourishing foods to support several individuals of healthy digestive ability, and yet not secure enough force from the food eaten to do a quarter day's work. It is so with cows. Some do not have the anatomical conformation or physiological digestive ability to economically convert food into blood, and thus supply the protoplasm of the milk-forming cells enough material from which to form milk. If this is so, it becomes more evident that a mere test for quantity of product is not satisfactory evidence of the real dairy value of the cow. Hence it becomes a matter of great importance that breeders should so manage their stock as to develop the peculiar digestive functions which are at the bottom of milk production. So far as my observations have gone, breeders pay little or no scientific attention to this point. They breed for large udders, external dairy form and large storage capacity for food, which may or may not be well digested, and they are apt to market their stock on the strength of a week's test, secured by forcing with concentrated and highly digestible food.

The manager of one of the most prominent herds in the country told me that he fed his calves to fatness, because that was the kind of looking calf buyers wanted, although he acknowledged that the practice was wrong. Well, of course, this is more the buyer's fault than the breeder's. It is evident that many dairymen have got something yet to learn. Perhaps it is too much to expect that breeders should create a product symmetrical in all good dairy qualities. Perhaps the dairy farmers can best further the constitution and digestive capacity.

Do not allow any of the particles of butter to be lost. They are worth money and correspond to profit and loss.

"INCURABLE" HEART DROPSY SPEEDILY CURED.

The Well Known Heart Specialist, FRANKLIN MILES, M. D., LL. B., of Chicago, Will Send \$2.75 Worth of His New Drops Treatment Free.

Drowning in the water of one's own blood is a fearful death which Dr. Miles' great dropsy discovery will almost invariably prevent. So certain are the results of this new and startling cure for Heart Disease and Dropsy, though complicated with nerve and stomach trouble, that a short course of treatment will be sent free to any of our readers. As Dr. Miles is well known throughout the United States as a specialist in Heart Diseases we advise every one afflicted with weakness or disease of the heart or dropsy to write at once for his new treatment and opinion.

Hungry of so-called incurable cases have been cured by this new treatment after five to twenty physicians had failed. Mrs. M. B. Rogers, of Rogers, Columbia Co., Ohio, writes: "Dr. Miles saved my life by curing me of that awful disease, dropsy, and heart trouble." Miss Sophia Snowberg, of No. 23, 21 Ave., Minneapolis, testifies that "Three days after my death was pronounced for dropsy it was nearly all gone, after two allopathic and two homeopathic physicians had performed a miracle for Mrs. C. after her long battle with dropsy." Mr. H. A. Groce, of 404 Mountain St., Elgin, Ill., aged 72, was thought to be incurable from dropsy, which reached to his lungs and caused another spell, cough, shortness of breath. He soon reported: "Dropsy and all gone." James Finston, editor of the Russia-June Sun, Ind., writes: "Mrs. P. was given up by three doctors. She

Horticulture

HORTICULTURAL TALKS.

HOME STORAGE FOR KIEFFER.
PEARL—The following letter was received from Mr. E. T. Flanagan of St. Clair County, Ill., a reader of the RURAL WORLD:

"I have only seven or eight acres of hilly ground, perhaps one acre of it level. I have four-fifths of it in pears, chiefly Kieffer. About 400 of them are eight or ten years old, the others just coming into bearing. I have had for some years past from 150 to 200 bushels of good pears from the twenty trees, and have had a good local market for them at retail prices.

"When gathered at the proper time and ripened right I have been easily getting from \$1.50 to \$2.00 per bushel. Now, the problem with me is to have a place large enough and, properly constructed, to shelter and ripen properly a crop of at least three times as large as I have been handling. I have had some trouble in ripening and disposing of all I have raised heretofore, but with the increase what must I do?

"I am not able to provide cold storage, and I do not think the extent of my crop would justify the expense if I could. Now, if in my place, what would you do? Of course, it is to get them to ripen and send them to St. Louis or Chicago and get whatever the commission man chooses to send you," but I don't want any of that.

"I have but a small place, and want to make the utmost I can out of it. And, as I am only a mile from a city of nearly 20,000 people, where I am well known and have a host of customers, I don't think it would pay me.

"I had thought to dig out a cellar under my house, some 12x24 feet, inside, after putting up a thick wall, ceiling overhead the joists of the floor above and filling the same with sawdust, and in this manner control the temperature, keeping it in September as low as possible by opening and ventilating it at night when the temperature outside is lower than that inside.

"My greatest trouble so far has been from too great heat and in keeping out the decaying pears, for it is impossible to prevent some imperfect ones getting in when gathered. And to overhaul four or five hundred bushels on account of the decaying ones is a very big and profitless job. Besides, I have found that the less pears, or any fruit, are handled the better.

"How would it do if you endorse the cellar plan to put the fruit away in half-bushel baskets to ripen? Of course it would cost more, but would they dry out instead of ripening?

"I have never yet ripened up early windfalls to be fit for use unless I covered them, and then if covered too closely they rotted, and if not covered with wax and shirred, I have some such now in my loft, put away in September.

"Another thing: how can I prolong the season of ripening? This year I tried leaving a lot on the trees until forced by the cold weather in November to gather them, and have now several bushels in prime condition in my cellar, the latest I ever had.

"I sprayed the past season, and until late in August I thought it was a grand success, but in September there seemed to be nearly as many affected by the codling moth as when I did not spray."

"This letter shows a thorough knowledge of how the Kieffer should be handled for most profit in cases where a good local market is available.

"The question of storage is of much importance, and the plan suggested would be hard to improve upon. I can certainly endorse every feature about it.

"Packing the fruit in small baskets will give good satisfaction, though I have found from my own experience that shelving is by far the best way to ripen up the Kieffer, the greatest advantage being that the defective fruit may be removed without handling the rest.

"There need be no fear of fruit shriveling when stored in this way, in a tight cellar, as there will be ample moisture given off by the fruit. Shriveling only occurs in cases where small quantities of fruit are in spacious rooms.

"In constructing such a cellar it will be well to provide some convenient arrangement for storing a few hundred pounds of ice, with receptacles for water, as the ice melts. This arrangement will be found a great advantage at times when the temperature cannot otherwise be kept sufficiently low to bring forth the desired results.

"Mr. Flanagan's idea of prolonging the season of the pear by allowing it to hang on trees as long as possible coincides exactly with my own experience.

"I have taken the Kieffer from trees after severe frosts, stored in an ordinary cool cellar and found them in perfect condition on Feb. 1.

"It is to be hoped that Mr. F. has not lost faith in spraying by his first attempt. Let him keep it up persistently, and in a few years he will find comparatively few defective specimens, either from codling moth or fungi.

"A scabby Kieffer is unsightly, though not infrequent where Bordeaux mixture is not used.

PEARS AND PEACHES FOR MISSOURI.—A reader at Palo Pinto, Mo., desires a list of pears and clingstone peaches best adapted to his locality for home use.

"The following variety of pears will give a splendid season, ripening about in the order named: Buere Giffard, Bloodgood, Tyson, Doyenne du Boussock, Bartlett, Seckel, Cal. Coe, Louise Bonne, Frederick Clapp, Vermont Beauty and Kieffer.

"As mentioned in a previous issue Le Conte is of best possible quality for preserving purposes, when gathered before it gets soft, after which stage it is worthless.

"Louise Bonne, while not a good eating pear in its natural state, is fine for preserving, and for evaporation it is better than any other variety.

"Among the best cling peaches are Hyslop, Orlo, Fair Cling and Wilkes. **PEACH BUDS.**—Upon the further examination of peach buds in various orchards in this vicinity it was found that there are still a few, scattering, live buds, not enough, however, for anything like a crop.

EDWIN H. RIEHL.
North Alton, Ill., Dec. 25, 1901.
NOTE.—We are glad to note that RURAL WORLD readers are calling on Mr. Riehl for horticultural information. He has had wide experience as a grower of fruit and ornamental trees and plants and is thoroughly competent to give advice based on personal experience. Questions will indicate to him what information is desired by our readers and enable him to make Horticultural Talks more interesting and valuable.—Editor.

THE FRUIT INDUSTRY OF CALIFORNIA.

A very valuable bulletin has recently come to our desk entitled "Statistics on the Fruit Industry of California," by Edwin S. Holmes, Jr., Field Agent, Division of Statistics of the United States Department of Agriculture. The immensity of the fruit industry on the Pacific coast is most forcibly impressed upon us by this Central West section when we review the tables of shipments of fruits. Mr. Holmes estimates that over 52,000 tons of green deciduous fruits were shipped by rail from Sacramento alone in 1900. Besides this there were large shipments of citrus and dried and canned fruits, also of raisins. There were large shipments from other important points by rail and also from those on the seaboard by vessel.

Mr. Holmes makes the following interesting statements regarding the development of the fruit industry in this State: "The fruit industry of California was practically begun during the establishment of the missions of the Franciscan monks. As early as 1792 there were about 5,000 trees growing at the different missions; apples, pears, oranges, lemons, lemons and olives constituted the greater portion of these trees, and as they nearly all did well they proved the possibility of fruit culture in California.

"In 1830 some attention was given to the cultivation of fruit in Sonoma County, and several small orchards were planted. About ten or fifteen years the planting of fruit trees began in Los Angeles and Yolo counties, but only in a small way. The fruit era, however, opened about the time of the great gold excitement in 1849. The majority of the immigrants to the State thought of nothing but gold; but a few of the more conservative obtained possession of some of these old orchards and found a handsome profit in selling their fruit at the then exorbitant prices. The demand for all kinds of fruit has since that time steadily increased, and within recent years fruit growing has come to be one of the most important of California's many industries.

"The climate of the State is particularly favorable to the fruit industry, and the soil in almost every section possesses practically all the qualities required for the successful cultivation of the growing plant and the matured tree."

THE FRUIT PROSPECT.

Editor RURAL WORLD: Some are asking if the cold spell injured the fruit buds. I have examined trees and vines in different localities and find that nearly all the peach buds were killed. In favored localities hardy varieties may bear a light crop.

"A reason why the peach buds did not endure more cold is that after the dry weather the rain caused such a flow of sap that this cold was not sufficiently elaborated and condensed before the sudden cold weather came on. Had the weather grown cold more gradually the buds would have been all right.

"Apples, cherries and grapes are uninjured. Plums and pears are slightly injured, and some kinds of raspberries are hurt some. Strawberries that were well cared for promise a full crop. Last summer was very unfavorable for small fruits. The three kinds named will not yield more than half a crop the coming season.

"In seasons of light fruit crops more means and vegetables should be planted. VERNON C. MO." JACOB FAITH.

WINTER ORCHARD WORK.

It must not be thought that with the gathering and disposition of the fruit the orchard needs no particular attention before next summer. Take advantage of the slackening of other outdoor work and study the needs of the trees.

"The difference between fruit from well-cared-for trees and neglected ones is as great, comparatively, as between an unweeded truck patch and a clean one. Winter work includes attacks on insects, fertilizing, pruning and cultivating. Says 'Meehan's Monthly':

"Perhaps the greatest obstruction to the production of good fruit is the destructive work of insects. Most of the worst of them are in a dormant state in winter and can be easily destroyed if they are gathered. Their cocoons are hid under the loose bark of trees, on sticks and any refuse lying about. The ground should be raked over, decayed fruit and all refuse gathered into a pile and burned, the ashes spread over the ground, and the trees and the cocoons of the trees and any permanent thing about the orchard. The loose bark on the trees may be scraped off (don't cut into the sound bark, as an ignorant gardener was found to have done), and this will disclose many cocoons.

"Scale insects are most difficult to reach. If the trees are very badly infested, and it is desired to save them, prune them in very closely, burn the wood pruned away, and treat the trunk and few remaining limbs. Whitewashing the entire tree is the oldest remedy. The lime will gradually flake off and carry scales with it. It is much better to spray with kerosene emulsion during the winter when it is advisable to catch something that may have escaped the first painting. Lime is a general purifier and will be helpful to the trees in more ways than one.

"The most approved method for riding trees of scale by spraying some all-solution over them, but the difficulty is in reaching every part of each tree's surface. If the tree be cut back as suggested the difficulty is lessened.

"The finer the spray the better the surface will be covered. Thick, greasy substances have been used in spraying as well as lime and coal oil. Injury has been done trees by their use in summer, but there is little or no risk in winter when they are dormant.

"Among various scale insects the San Jose scale is considered most alarming, and this is due to the enormous rapidity with which it increases, one female alone producing a big army in one season. The Kieffer scale and Oyster Shell Bark louse are bad enough to make it desirable to keep down their increase. The same treatment applies to all.

"Fertilizing is at times undesirable before late winter. If stable manure be used it may be hauled to the ground in midwinter and allowed to decay and soak into the soil. This is well accomplished by the time the roots are in need of the food in early spring. Stable manure is the best fertilizer where it is desired to encourage growth of wood. It is also used as a mulch for the protection of surface roots, which are generally plentiful with old trees.

"Fetash in wood ashes is considered especially good for fruiting trees. Apply in late winter or in spring. Many orchardists alternate between barnyard manure and wood ashes, or commercial fertilizers of some kind. This is a good practice.

"Pruning should be done in winter, where it is necessary to prune away large limbs. The trees may need branches thinned out to give abundance of light and air amongst the branches—they cannot have too much. A low spreading habit should be encouraged for exposure to the light as possible. If the trees are spreading close to each other, don't be afraid to cut out alternate ones where necessary. It will give additional value and longer life to the remaining ones.

"Cultivating can be done to advantage in winter. Surface soil should be stirred and made fine to admit air and moisture readily in the growing season. Summer cultivation must necessarily be rather shallow, for fear of disturbing the feeding roots, which are rather near the surface. The danger is not present in winter, and it is a good time for the soil to settle. The surface may be first have its coating of manure and then be turned lightly under. It need not be harrowed smooth—the rains and frost will do that to perfection.

"When weather will not permit of outside work get the spraying apparatus in order and the form of tree is growing them too much. The holes may even be dug and manure placed in them to become well incorporated with the soil. Spring planting is usually accompanied by considerable haste, because of other work at that time, and it is advisable to be in readiness.

WHEN PEACH BUDS ARE KILLED.
The theory why peach buds are killed in my opinion comes nearest to the real cause is this: From the time fruit leaves of a tree drop in the fall until they start in the spring, there is more or less circulation of the sap contained within the cells of the buds going on and depending on the temperature. The sap contained in a tree during its dormant state is more dense and contains less water than when the tree is growing. Each bud has its freezing point, and such as contain water expand in freezing, writes John G. Clark in the "New England Homestead."

"The less dense the sap, or the more water it contains, the easier will it freeze solid, and the more dense the sap the more cold it will take to freeze it. In freezing the expansion of the sap ruptures the cell walls of the fruit buds, and they are killed. If the sap in the cells does not expand enough to burst the walls, or if the tissues are elastic enough to escape being ruptured, the bud is not injured.

"From 1882, with the exception of four years, 1888 to 1892, I have kept a record of the temperature whenever the mercury went to zero or below and the condition of the peach buds at these same dates. During the winter of 1883-4 the buds were killed Dec. 23, when the mercury stood 22 degrees below zero. During 1884-5, on Dec. 28, at 19 degrees below; 1885-6, Jan. 12 and 14, at 14 degrees below, and half were killed. On the morning of Jan. 9, 1887, the mercury registered 22 degrees below zero, and all buds were killed, with the exception of Oldmixon.

"In 1887-8 half the buds killed Jan. 17 at 4 degrees below zero. Jan. 25, at 23 degrees below, all buds were killed but Oldmixon. On three different dates after this the mercury went to 12 degrees below, yet the Oldmixon gave a good crop. In 1892-3, with the mercury 14 below on Jan. 17, there was a good crop of fruit. In 1893-4, Dec. 14, the thermometer registered 14 degrees below; all varieties except Crosby and Oldmixon were badly injured. In 1894-5 the lowest temperature was Jan. 30, 12 below. There was a good crop of all kinds, 1895-6, Jan. 16, 14 below; all buds killed. In 1896-7, Feb. 7, below; all buds a good crop. 1897-8, Jan. 4, 12 below; one-eighth of buds killed; Jan. 2, 25 below, all buds killed. 1898-9, Feb. 3, 14 below; one-third of buds killed, but there was a good crop. 1900-1, Jan. 20, the mercury was 11 degrees below zero, and one-half the buds were killed.

"From this it will be seen that there are peaches when the thermometer registered 8, 22, 23, 14, 12, 17, 20, 10 and 11 degrees below zero, and yet they were killed when the mercury went to 23, 14, 14 and 25 degrees below zero. One is often asked if it is not after the buds have started that they are most liable to be injured by the cold. At the south this is probably the case, but in Massachusetts I think not, for as far as my experience goes I have never had the fruit buds injured after Feb. 22. It has always been the severe cold of winter, between Dec. 20 and Feb. 22, that has destroyed the peach buds in my orchard.

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BITTER ROT.
In a report made to the Missouri Horticultural meeting at St. Joseph, Director John T. Stinson of the Missouri Fruit Experiment Station at Mountain Grove, made a report on a new and thoroughly reliable method of combating this dangerous disease. Professor Stinson believes in spraying as the proper method to combat this disease. He uses the liquid spray, in the following formula: The Bordeaux Mixture, five pounds copper sulphate, five pounds arsenite of lime, boiled in fifty gallons of water.

"Last season the infection, by spraying, had excellent results in combating this disease, which is a fungous one. They saved over two-thirds of the fruit and rendered it marketable on the sprayed blots.

"This year Professor Stinson stated that on some trees the spraying seemed to produce a rust on the apples that injured their marketable quality. He thought this might be due to having the mixture too strong, or perhaps the spraying was kept up too long a time. He thinks that it is necessary to only spray for a shorter period to escape this rust.

THOROUGH HARROWING ORCHARDS.
One tool I now use will move with a single pair of light men 15,000 tons of earth one foot in ten hours; and a few years ago I used to move the earth deeply before seeding to grass 35 or 40 times. Now I move it 50 to 75 times. This is the cheapest way for me to buy fertilizer. I had five acres of plum orchard set out three years. The second and third year I had heavy applications of fertilizer, and if you will come here and see the orchard and cannot find many of the shoots grown this year, 7 feet, and an average growth of nearly 4 feet over the entire orchard this year, with nothing but intense cultivation to aid, I will give you \$500, and pay your expenses both ways.—George M. Clark in Country Gentleman.



Corn

removes from the soil large quantities of Potash.

The fertilizer applied, must furnish enough Potash, or the land will lose its producing power.

Read carefully our book on crop-feeding. GERMANY KALI WORKS, 92 Nassau St., New York.

GROWING RADISHES IN WINTER.

Like lettuce, radishes can be grown continuously from autumn until spring, in either hotbeds or hothouses. The radish crop is the easiest of all vegetables to cultivate. Their rapid growth and quick maturity permit of their being planted in connection with other crops, as lettuce or beets, in alternate rows, five or six inches apart, or in rows about the same distance apart, all to radishes.

As the radish crop is not a profitable one to grow under glass in the fall and early winter. For this reason they are not planted generally until the last of December or first of January, or even later. I have grown radishes successfully and profitably in connection with lettuce and beets and think with the cucumber crop they can be grown to good advantage, writes Latham in the "O. J. Farmer."

"My method of growing the crop with the best and surest results is to take a house that has grown a crop of lettuce in fall and early winter and prepare the ground as for another crop of lettuce, excepting the heavy manuring. If well manured when set to lettuce, it is better not to use any stable manure at all. A little commercial fertilizer may be sown on the surface of the bed before marking, if manure was used sparingly on lettuce, some finely rotted or well composted manure can be used. Avoid the use of fresh, strawy manure. Ashes make a good fertilizer for radishes. Sow on a surface of bed either before marking to drop seed or after the radishes are up, washing off from plants with hose.

"After having thoroughly prepared the soil, the bed is marked in rows five or six inches apart. The rows should be at least one-half inch deep if seed is to be planted. If plants are to be transplanted just a light mark is all that is necessary. Some time may be saved and better and more symmetrical bulbs are sometimes grown from transplanted plants than directly from seed. To get these plants the seed should be sown broadcast in a bed about ten days before the plants are needed. They are taken up and transplanted same as any other vegetable plant, and should be set from one to two inches apart in the row. I prefer to mark one-half inch deep or more, and drop seeds with the fingers, two or three to the inch, covering with the back of an iron garden rake, to begin at a medium depth. A light rain is sometimes used, but this I do not think necessary, as I water after leveling up the bed.

"The seeds germinate and come up very thickly and the thinning out should be done as soon as the plants are all up. Thin from one to two inches apart. The better they are thinned the better the crop will be. The ground should be kept moist and heat regulated to suit the length of time desired to grow the crop to maturity. Radishes can be grown at quite a low temperature, or a higher temperature does not injure them. I think it better to begin at a medium temperature, increasing the heat as the crop nears maturity. The warmer the house is kept the more water will be needed. Some attention must be given to ventilating, airing out some every bright day. Radishes can be grown ready for market in 21 days, but about four weeks is the usual time for the crop to reach maturity. Radishes can be grown at quite a low temperature, or a higher temperature does not injure them. I think it better to begin at a medium temperature, increasing the heat as the crop nears maturity. 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SECOND ANNUAL BROOD SOW SALE TO BE HELD ON THE FARMS FEB. 4, 1902

SPECIAL RATE OF ONE AND ONE-THIRD FARES FOR THE ROUND TRIP HAS BEEN GIVEN BY THE RAILROADS FROM ALL POINTS.

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South Down Rams and Berkshire Pigs.
Either sex. Individual merit and photos breeding
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Can save feed by using Excelsior Worm
Powder. It aids digestion and removes
all worms, requiring less food to produce
the same results. Price, 7 lbs. \$1.00, 50
lbs. \$6.50. Write for terms to agents.

BLAKE BROS., Box 8, Galeburg, Mich.

ACCLIMATED Angora Goats.

Registered stock, also grades for sale. The
best in the state. Write us for prices, stating your
wants.

FORMAN BROTHERS,
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IMPROVED CHESTER WHITES

of all ages and both sexes for sale. First prize gold
boar. State show as well as four other prizes gold
on 100 lb. pig.

H. RAUSCHER & SON,
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BERKSHIRES.

Berkshire and Shorthorn.
Large English Berkshire Pigs, per pair, \$12.50. Two
extra good Shorthorn bull calves. Write me for prices.
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Walnut Grove Herd

Big blooded English Berkshire. Some Choice Spring
boars for sale. Ready now for delivery.

H. R. JACKSON, Prop.,
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LARGE ENGLISH BERKSHIRES—5000 boys

Angus cattle. J. P. VIGOR, 1000 boys.
P. R. Chisholm, White Turkey.
GEO. W. McINTOSH, Menard, Mo.

100 lb. Early Fall \$10

Strong blooded, growthy, finest breeding. Extra
early fall stock for sale. L. A. BATES,
BREEDING CO., St. Jacob, Ill., near St. Louis.

POLAND-CHINAS.

VIVION & ALEXANDER,
FULTON, MO.

Brothers of the best strains of Poland-China hogs.
Registered Jersey cattle and Plymouth Rock chickens.
Young stock for sale at all times.

POLAND-CHINAS.

Growthy, heavy-bodied, March and
April boars and sows, bred by China
Kings O. S. 1899, and out of gilt-dams; also
a lot of old females and other stock. Write me for
prices. (Near St. Louis).

WALNUT VALLEY FARM HERD

Poland-China hogs. Full price at \$10.00 each
of leading strains. Customers are cordially invited
to inspect stock before sale.

BERNARD W. WALLIN, Menard, Mo.

POLAND-CHINAS. Old-gilt and

individual merit combined. Best of the breed.
B. L. OGDEN, Carmi, White Co., Ill.

PLEASANT HILL POLAND CHINAS.

One grandly bred
of 1900 fall sows.
March, April and
May sows, bred by
China Kings O. S. 1899
and out of gilt-dams.
Write me for prices.
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DUROC-JERSEYS

DUROC-JERSEYS
and W. P. ROCKS.

Choice young stock for sale. Address.
H. E. THOMAS, R. P. D. No. 4, Carthage, Mo.

BIG 2 HEADS Duroc-Jersey and Chester White

Boys. Top individuals. No serious
injuries. Write for list of prices.
J. B. DUNBAR, Macedonia, Phila. Co., Mo.

Duroc-Jersey and Berkshire Hogs

Extra
Satisfaction guaranteed or you may return at
our expense. B. C. WAGNER, Paris, Ill.

THE SPIRIT OF WINTER.

The spirit of Winter is with us, making
its presence known in many different
ways—sometimes by cheery sunshine and
glistening snows, and sometimes by driving
winds and blinding storms. To many
people it seems to take a delight in making
bad things worse, for rheumatism
twists harder, twinges sharper, catarrh
becomes more annoying, and the many
symptoms of scrofula are developed and
aggravated. There is not much poetry in
this, but there is truth, and it is a wonder
that more people don't get rid of these
ailments. The medicine that cures them
—Hood's Sarsaparilla—is easily obtained
and there is abundant proof that its
cures are radical and permanent.

From six to nine months is as long as
hogs should be kept on the farm.

POLAND CHINAS. Best breeding and

individual merit combined. Best of the breed.
B. L. OGDEN, Carmi, White Co., Ill.

ANGORA GOATS FOR SALE!

I have about 800 recorded, high class and medium class does and a few old-fashioned goats that I will sell at a reasonable price. I am in a position to fill any order satisfactorily from any standpoint. Address: W. T. McINTIRE, Agent, Kansas City Stock Yards, Kansas City, Mo.

FINE BERKSHIRES

Of the best families at farmers' prices. Write for what you want, or, what is better, come and inspect the stock.

W. H. KER, Prairie du Rocher, Ill.

Cedar Lawn, E. H. Rodgers, Proprietor.

Breeder of registered Shropshire Sheep, Poland China Hogs and Shorthorn Cattle. Also Mammoth Roman Turkeys and Barred Rock Chickens.

FOR SALE—Big Chief I know, 26,289, the first draft for \$100.00 gets him, the largest "I know" boar living, will weigh in show shape 1,000 lbs., with good action as any pig, was 8 years old Sept. 28, is strictly black, six white points and is guaranteed to be all right in every respect.

JOHN L. CLARK, Bolivar, Mo.

ROSE HILL HERD

of Duroc-Jersey Hogs—extra early spring farrow and heavy ready for service, also a lot of thrifty, growthy Ang. & Sept. pigs all from large prolific sows. Price reasonable.

S. Y. THORNTON, Blackwater, Mo.

The Pig Pen

TO PREVENT SWINE MILKING UP.

I can well remember in my young days how the farmers complained of losses in their swine herds because of piling up in the nests and smothering the smaller or weaker ones. In those days little, if any, effort was made to shelter the swine, and where an effort was made it was very crude and fell far short of meeting the purpose for which it was intended. This was partly caused by the mistaken belief that swine were so hardy that they did not need much protection, and again from the belief that shelter could be made too warm. If there is one animal on the farm that should reveal in comfort it is the pig. His main effort is to keep his stomach comfortably full, and his outside comfortably warm or cool according to the season. writes John M. Jamison in the "Prairie Farmer." This fact the swinebreeder can accept and work accordingly. The housing and shelter for swine cannot be made too warm if there is an open doorway through which they can pass out into the fresh air. It must always be planned to have such shelter dry, for if not dry, the warmer it is, the greater the injury to the animals. Make this the rule—warm and dry shelter—and the pig will not get too warm. I think it impossible for any feeder that has given this matter careful study to controvert this statement. Tack this up against the hoghouse, straw pile or fence of the feed lot for a rule and motto. It makes no difference where it is carried out.

Now to get at this matter of piling up, how will we get rid of it? Under the old regime when bodded and nested in the open field with the heaven's canopy as a rain and snow shed, their nests in the warmer it is, the greater the injury to the animals. Make this the rule—warm and dry shelter—and the pig will not get too warm. I think it impossible for any feeder that has given this matter careful study to controvert this statement. Tack this up against the hoghouse, straw pile or fence of the feed lot for a rule and motto. It makes no difference where it is carried out.

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CARE OF WELL-BRED SWINE

Well-bred swine cannot be treated in the haphazard manner which is often given to the common pigs of the farm yard. I have seen farmers pay good prices for pure-bred swine, and then abuse and neglect them so that the results of the experiment were poorer than from common pigs. In order to get proper results from pure-bred animals of any kind they must be treated carefully, and with the idea that they are very susceptible to their surroundings and environments. Chase and worry a pure-bred sow, as many of the common farm yard animals are, and she will refuse to produce progeny that shows any advance upon the scrubs. Indeed, I think sometimes they tend to degenerate faster than the common stock. This fact is often noticeable when fine-bred swine are shipped by railroad to distant points. They arrive in a nervous, frightened condition, and they will scarcely eat enough to keep them alive. Animals in such a condition need nursing. They require the kindest sort of attention. Treat them as if you wanted to make friends with them, and in a few days they will feel at home, writes E. F. Smith in the "American Cultivator."

There is profit in raising the best with pure-bred stock, but the better these animals get the more careful we must be in feeding, tending and handling. They require better treatment all around. If one is not willing to give this to them, it will not pay to make the investment. Stick to the scrubs. They are better suited to a person's conception of the business. There are farmers to-day who argue against pure-bred swine simply on that score. They do not care to raise hot-house animals, as they style them, and so they stick to their scrubs. Now pure-bred swine are not hot-house animals, but neither are they scrubs. They do not demand cooking, but they do require good rational feeding, breeding and attending. These are essential to their best development. They are also necessary for the larger profits which the farmer has a right to expect.

Starting the herd right with a good boar is the first step, and the good blood thus injected into the herd must be kept up and cultivated. It is necessary in every possible way to make the most of the qualities developed which go toward improving the animals. We cannot emphasize these good qualities any too much in our treatment of these animals, and if we fail to be in sympathy with the work and the animals we cannot well succeed as we should.

SWINE BREEDING AND FEEDING.

Concerning the feeding and breeding of swine Professor C. S. Plumb writes: Without intending to be particularly radical on the question, as one interested in the production of American pork, I believe that our farmers must do something to get the swine of this country to the type of fat pig which is now being produced by them. If our people do not believe that the bacon pig can be profitably handled, I believe that other men may also realize that many of our people are getting far less satisfactory returns than they should have from our typical market pigs.

It is not simply a question of how much gain an individual pig will make in a given length of time to make profit, but the matter of reproduction and the future development of our swine interests have everything to do with the future development of our pork trade. The type of fat pig that produces a litter of six, other things being equal, is at a disadvantage when compared with the man who handles a breed of pigs that will farrow litters of ten or twelve.

I think observing handlers of Poland-China swine, for example, must realize that this breed is not a very great extent than it should. It has been fed on corn and bred with such fat-producing lines that its capacity to reproduce and character of its bone are, as I believe, considerably injured over what the breed was fifteen years ago. This is not simply an opinion of my own, for I have heard many Poland-China breeders express the same thing.

Again, there is such a thing as a pig maturing too quickly and forming more of the dumping style of hog than an animal capable of strong, full growth. At the Indiana Experiment Station, where we keep some of the very best of American breeds of pigs, purchased from the best-known breeders in this country, I have had very good opportunity to see something of this form of development, which in my eyes is defective. Some of our breeds should have a greater capacity to continue growth and expand and have a large size for breeding animals.

The extreme type of the bacon pig is not likely to meet favor in the United States, and I am not prepared to say that it would be the most profitable type of pig that our farmers should handle. I do believe, however, that the better type of large English Yorkshire or the leaner type of Berkshires will command the best prices from the breeder's standpoint to farmers who will give them a fair and impartial trial.

Our American pigs as a rule lack bone. This leaner type of pig inclines materially to better bone, will produce altogether larger litters of pigs, purchased from the best-known breeders in this country, I have had very good opportunity to see something of this form of development, which in my eyes is defective. Some of our breeds should have a greater capacity to continue growth and expand and have a large size for breeding animals.

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of pork from a bushel of wheat. He finds that even at the lowest figures it makes a good price for wheat. Many farmers have a theory that hogs fed on wheat produce very little lard, and some claim they have actually proven this to be true.

ONE YEAR'S SWINE FEEDING.

From Sept. 1, 1900, to Sept. 1, 1901.

We follow mixed farming, but swine feeding is the most important factor, sheep second. A few years ago sheep were first, but the market has changed in favor of swine.

Along in the first days of September we change from old corn to new. At this time our by-products, such as bran and middlings, are all fed up, our hogs that were wintered over are all sold, and there are only three things to be considered in casting up the year's feeding. The first is old corn. At this time (Sept. 1) in 1900 we were carrying over 1,500 cubic feet of corn, or about 750 bushels shelled. This year we carried over about 2,500 cubic feet, or 1,250 bushels shelled, or about 400 bushels more than year ago, writes Walter S. Tomlinson in the "Ohio Farmer."

The brood sows to be wintered were about the same as a year before. Sept. 1, 1900, we were feeding 170 spring pigs; this year we had 215—a gain of 45, which at \$5 a head, would make \$230 more than in 1900.

During the year we raised and sold 528 head, weighing 32,750 pounds alive, for a total of \$2,391.65, besides four killed for our own use, weighing over 800 pounds, worth at least \$45. Hence the total value of swine produced during the year was \$2,436.65.

For cost of production. There were 90 acres of corn, estimated at an average of 50 bushels of dry shelled corn per acre, equivalent to 90 bushels in the early fall, as corn dries away about 15 per cent from fall to the next summer. We will put the yield at 4,000 bushels of thoroughly dry corn. Then we bought 1,000 bushels for \$55. Of the 1,000 bushels purchased, the three heavy teams consumed 450 bushels; light team and colts, 50 bushels; 185 breeding ewes and 70 lambs wintered over 300 bushels; cows and poultry 60 bushels, making 560 bushels in all, fed to other stock than swine. Hence the hogs alone consumed 3,440 bushels of corn during the year.

In a former article I mentioned that we sold a little over \$1,000 worth of timothy hay and invested the proceeds in corn and mill feed; \$10.71 were paid out for screenings—this all went to the fattening hams and the chickens. We paid \$37.51 for bran and middlings. Of this we estimated that the sheep and lambs consumed ten tons of bran that cost us early in the fall of 1900 \$12 a ton, or \$120. We also bought a ton of prepared hog feed, \$25, highly recommended for little pigs, but, like limburger cheese, a little of it went a great way with them. I have further than to determine the exact worth used. I also used three barrels of salt, \$3.75, and paid \$5 for the use of a 15-acre mixed clover and timothy field. Deducting what was paid out for bran, middling, "tankage," salt and pasture, \$62.66, from \$2,391.65, leaves \$2,328.99 for the estimated 3,750 bushels of corn fed to all the hogs, brood sows included, during the year. This is a trifle less than 70 cents per bushel for the corn.

We made some mistakes during the year, the most important one being the breeding of some young sows to farrow in the early summer for the midsummer market. This was a failure, and we fattened the sows and sold them, and started in with the same number of brood sows we had the year before—32; so to keep, and \$3 to go on as failures. The highest price received during the year was \$7.75 per hundred live weight, and the lowest was \$4.25.

As for the pasture, we found the pigs were not doing much on a very great portion of it, so we turned in 100 ewes and their lambs, but it got such a start that we took the sheep out when a part of the field got to be about a foot high, and made 10 large loads of nice mixed hay, worth \$70, but the hogs had their pasture of equal value, of which we made no account.

H. RAUSCHER & SON, Ashton, Mo., write: "Our Cheaters are doing finely. We are sold out of boars of spring farrow, but still have a nice lot of sows on hand, also a choice lot of fall pigs that are ready to ship."

THOMAS CANNEDY of Felter, Ill., writes the L. A. Spies Breeding Co. of St. Jacob, Ill., as follows: "The boar pig I ordered of you arrived in good shape. I am more than pleased with him; he is the best pig I ever saw. When you wrote me that this pig would cost me \$50 elsewhere I scarcely believed it, but I can see for myself now. I consider my \$15 the best investment I ever made, and thank you for your kind treatment."

JOHN HEDGES & SON, Paris, Ill., write: "We still have on hand one boar of September, 1900 farrow. He is sired by Chief Perfection, dam H's Black Bear, a half sister to the first prize sow at the Illinois State Fair, and also at Chicago show in 1901. He is a lengthy, smooth-bodied hog, with nice smooth coat of hair, short, wide head and nicely tipped ears, and will make a large hog. We also have a few good March and May boars sired by Chief Perfection, he by Perfecto Perfection, the sire of Keep On, the sweepstakes winner at Chicago, 1901. We need the room that these boars occupy."

There is much to be learned by a critical eye from a survey of the different sections of the flock at the beginning of the winter season. Take the ewes for example. They may be middle-aged, young or old, and will at this time be giving signs of how they will do for the year. The yearlings of course will all be in good condition, but they will present considerable variety. Now at the maturing time some will be spreading in frame and strengthening in bone, and showing unlimited potentialities in the stock and large, weak ones will be giving signs of weakness. The vigorous, firm-fleshed condition which results from liberal feeding and plenty of exercise is the aim of every experienced flockmaster.

A LOOK OVER THE FLOCK.

With the splitting up of the lambs and dams and the separation of ram lambs from ewe lambs the flock perhaps reaches its broadest proportions, consisting as it does of ewes, ewe lambs, a stock ram or two and some ram lambs. Every one of course is not a breeder of range, and in other cases it will be ewes, ewe lambs, stock rams and wethers or some such division. What a man has to say to his brother shepherds is best said in close relation with his own experience, as it will be more definite and writing must be definite to be any good, writes J. J. McGinnis in the "American Sheep Breeder."

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for our fall pigs and we will price them very reasonable to those that want them quick. We also have a nice lot of 1900 fall sows and 1901 spring sows which are bred of being bred to Chief Perfection, Jr., and Ideal Teumseh, the latter winner of first in aged class at Illinois State Fair in 1900. He is the most stylish, large and smooth hog of his age we have ever seen. We also have two extra good 1

